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ABSTRACT

Despite aversive criticism, creativity research has produced sound though diverse theories; deliberate application in education, business, and everyday life; and the integration of creativity in the school curriculum and methodology. Due to the development of two new measures of verbal originality, contained in "Thinking Creatively with Sounds and Words" (Khatena and Torrance, 1973; Torrance, Khatena and Cunnington, 1973), investigations of creative imagination imagery previously too difficult to conduct are now feasible. The author's investigations include the study of the effects of training adults, adolescents, and children to produce more original images and analogies; developmental patterns in the production of verbal images; the effects of experimental arrangements of fixed and variable time intervals in the production of images in relation to creativity levels; and creative imagination imagery and the function of sense modalities. New directions for research should include the construction of better testing instruments, the analysis of imagery in relation to mental functioning and personality, and the investigation of the value of practical applications of research for productive performance and problems solving. (KS)

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CREATIVE IMAGINATION IMAGERY: WHERE IS IT GOING?[1]

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The earlier interests in and explorations of creativity were more by way of philosophical speculation, anecdotal reports and biographical analysis. Somehow the Structure of Intellect Model first presented by Guilford in his Presidential Address at the American Psychological Association Conference in 1950 projecting comprehensive thought on intellectual potential gave the kind of focus to creative mental functioning that acted as catalyst to serious creativity research and its application especially in business and education. From this point on creativity research has assumed the proportions and momentum of an avalanche.

The avalanche of creativity research will not stop in spite of aversive criticism, and the thunder of the past 25 years has produced: (1) sound though diverse theories and definitions some of which have led to the construction of measures that are finding greater acceptance through use, proper study and refinement; (2) important deliberate application in education, business and everyday living of the many; (3) the integration of creativity in the school curriculum and methodology relative to instructional materials in almost every subject matter field, and in creative ways of learning respectively in the United States (and abroad); and emphasis of creativity in such current educational movements as career education involving realistic problem-solving, futurism and creative problem-solving, special education programs for the gifted and

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[1] Presentation in Symposium entitled "Creativity: Where is it Going?" at the American Educational Research Association Annual Meeting held in San Francisco, California, on 22nd April, 1976.

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and talented, and the like[2]; (4) the greater use of such measures for the identification of creatively gifted students and to a lesser extent for the appraisal of the consequences of educational programs that are creatively oriented; (5) better understanding to some extent of the creative-behavioral correlates of people of different ethno-social groups in the United States and to a lesser extent abroad, and including children who are disabled, disturbed or disadvantaged; (6) sounder basis for the accelerated-productive education of the gifted and talented; (7) recognition of creativity by the American Psychological Association as a respectable field of inquiry within the larger context of personality; (8) and recognition by the US Office of Education of creative and productive thinking abilities and performance as important facets of the gifted and talented relative to identification and educational programming[2].

CREATIVE IMAGINATION IMAGERY RESEARCH

A less well known area of creativity research is that of creative imagination imagery. The relative paucity of research on imagery especially as it relates to the creative imagination can be traced largely to its rejection by Watson and the ascendency of hehaviorism in the 1920's. After 30 years of "illegitimacy" the subject was readmitted as worthy of study due to the renewed interests of American Psychology in cognitive processes and the view that images are reactivations of earlier sensory or perceptual activity rather than as mental mechanisms (Bugelski, 1970; Holt, 1969).

This renewed interest in imagery tended to limit itself to the study of after-imagery, eidetic-imagery and memory-imagery; and studies on imagination-imagery confined itself to hypnogogic imagery, perceptual isolation, hallucinogenic drug imagery, photic stimulation and pulse

[2]Personal communication from Dr. E. Paul Torrance 27th February, 1976.

current imagery, and the imagery of hallucinations (Richardson, 1969; Pavio, 1971). Common to these studies of imagination imagery is the reduction of external stimuli operating upon an individual to a level which frees him to attend an inner world of stimulus events that allow him to experience imagination imagery (Richardson, 1969). Both Richardson and Pavio have stressed the need for study of creative imagination imagery, and except for a few investigations, most of which are peripheral to the subject, little research has been done on creative imagination imagery.

In several recent summary papers (e.g. Khatena, 1973, 1975, 1976) on the subject I indicated that investigations of creative imagination imagery hitherto too difficult to conduct has now become feasible owing to the availability of two measures of verbal originality, Onomatopoeia and Images and Sounds and Images combined in a battery entitled Thinking Creatively with Sounds and Words (Khatena & Torrance, 1973; Torrance, Khatena & Cunnington, 1973) though most of the studies on the subject have been done with Onomatopoeia and Images. Briefly, both measures provide either sound or onomatopoeic word stimuli under free associative conditions, with originality of response determined by statistical infrequency,and the logic of the tests hinge upon the operation of the creative imagination to effect a break away from the perceptual set of audio-verbal stimuli to bring about the production of original verbal images. In Onomatopoeia and Images "the word stimuli are tied to the associative bonds of referential and inferential meanings established through usage. These act as the sets that must be broken by the creative energy of the respondent in order for the elements to be re-ordered by what Coleridge refers to as the more conscious and less elemental secondary imagination (1817). The sound component of

these words is even more subtle for it often strikes the listener unaware, stirring the emotional base of intellect, provoking a tendency toward the irrational response. It is in the intellectual-emotive interaction that the mechanisms of the creative process function most effectively in producing the original"(Khatena & Torrance, 1973, P.28). In addition to the measurement of originality relative to statistical infrequency, the instruments have the potential to measure creative analogies and image simplicity and complexity (e.g. Khatena, 1975) towards which end a scoring procedure is being developed.

My investigations of the creative imagination and its imagery correlates have in the main included the study of:

(1) the effects of training college adults, adolescents and children to use their imagination to produce more original verbal images and creative analogies with simple or complex image structure;

(2) the effects of experimental arrangements of fixed and variable time intervals in the production of original verbal images by adults, adolescents and children relative to their creative levels as well;

(3) developmental patterns in the production of original verbal images, and creative analogies with simple or complex image structure;

(4) developmental patterns in the production of original verbal images of deaf and hearing children;

(5) vividness of imagery, autonomy of imagery and the creative imagination (as well as creative self-perceptions); and

(6) creative imagination imagery and the function of the several sense modalities (visual, auditory, cutaneous, kinesthetic,

gustatory, olfactory and organic) in the production of original verbal images by college adults.

SOME DIRECTIONS OF RESEARCH ON CREATIVE IMAGINATION IMAGERY AND ANALOGY

Specific to the study of creative imagination imagery and analogy I perceive attempts will be made to explore:

(1) the use of other measures in the auditory-visual/verbal-figural dimensions, possibly with such measures as Sounds and Images and the Figural Forms of the Torrance Tests of Creative Thinking, and the continued use of Onomatopoeia and Images;

(2) the construction of better instruments that will require greater interplay between the intellectual and emotive dimensions of mental functioning;

(3) the construction of scoring systems that are rooted to a much greater extent to qualitative analysis of imaginative responses, creative analogies and imagery;

(4) the analysis and interpretation of imagery not as single seperate images but as falling into a total and more comprehensive pattern of mental functioning and personality;

(5) the value of applying the principles of creative imagination, analogy and imagery to educational programs, curriculum and methodology to enrich learning and increase opportunities for productive performance;

(6) the application of creative analogy in career education--the setting of goals and the directions that may be taken to advance them.

(7) the use of an identification-diagnostic-facilitative model that will lend itself to determine the specific needs of individuals for nuture so that some kind of precision can enter into the

formulation of strategies aimed at facilitating the creative imagination of children and so enhance their education;

(8) the application of creative analogy and imagery in the futuristic approach to creative problem solving;

(9) the characteristics of people at various age levels along continua of intellectual potency, mental health and emotional stability, and as these relate to the creative imagination; and

(10) the characteristics of people relative to cultural and sub-cultural variations along a continuum of sufficiency and deprivation.

In conclusion let me say that much has been achieved in the past two decades in creativity research, and much more can be expected in the next two decades, during which time I foresee consolidation and innovation close companions. Fresh strikes of significance can be expected especially in areas of research that go beyond intellectual abilities into the lesser known but dynamic regions of emotive energy inherent in the creative process. Major advances in this exciting area of research await the daring among us; so let us forge ahead to accomplish what must be done.

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